Patent claims:

1. A device for measuring the thickness of a transparent sample (2), in particular a glass strip or a glass pane,

having a first light beam (L1), in particular a first laser beam, incident on the front surface (8) of the sample (2) obliquely at a first incident angle ($\alpha 1$),

having a second light beam (L2), in particular a second laser beam, incident on the front surface (8) of the sample (2) obliquely at a second incident angle ($\alpha 2$),

the first incident angle ($\alpha 1$) and the second incident angle ($\alpha 2$) being different,

and having at least one detector (11, 12) for detecting the light beams (L1′, L1′′, L2′, L2′′) of the first and second incident light beams (L1, L2) reflected by the sample (2), and for determining their position, characterized in that

at least one incident light beam (L3) substantially parallel to the first or second light beam (L1, L2) is directed toward the front surface (8) of the sample (2), and in that

at least one detector (11) is provided for detecting a light beam (L3′), reflected by the sample (2), of the parallel light beam (L3), and for determining its position.

2. The device as claimed in claim 1, characterized in that the third light beam (L3) can be switched off.

3. The device as claimed in claim 1 or 2, characterized in that the incident light beams (L1, L2,

L3) and/or the reflected light beams (L1′, L1′′, L2′, L2′′, L3′) lie in a common beam plane (14).

4. The device as claimed in one of the preceding claims, characterized in that the device (1) and the transparent sample (2) are moved relative to one another.

5. The device as claimed in claims 3 and 4, characterized in that the relative direction of movement (15) lies in the common beam plane (14) of the incident light beams (L1, L2, L3) and/or of the reflected light beams (L1′, L1′′, L2′, L2′′, L3′).

6. The device as claimed in one of the preceding claims, characterized in that the first incident angle ($\alpha 1$) and the second incident angle ($\alpha 2$) lie in the beam plane (14), defined by the first and second light beams (L1, L2), on different sides referred to the sample normal (9) in the region of incidence (10).

7. The device as claimed in one of the preceding claims, characterized in that two detectors (11, 12) are arranged at a spacing from one another, preferably perpendicular to the surface (8) of the sample (2).

8. The device as claimed in one of the preceding claims, characterized in that the region of incidence (10) of the incident first, second and third light beams (L1, L2, L3) on the sample (2) is smaller than the spacing of two opposite detectors for detecting the reflected light beams (L1′, L1′′, L2′, L2′′, L3′).

9. The device as claimed in one of the preceding claims, characterized by two beam splitters (3, 4) for producing the three light beams (L1, L2, L3) from one light beam (L).

10. The device as claimed in one of the preceding claims, characterized by an evaluation device, connected to the at least one detector (11, 12), for determining the thickness of the sample (2), an inclination correction, an angle correction and/or a curvature correction being carried out, in particular.

11. A method for measuring the thickness of a transparent sample (2), in particular having a device (1) as claimed in claims 1 to 9,

in which a first light beam (L1) is incident obliquely on the front surface (8) of the sample (2) at a first incident angle ($\alpha 1$), and the positions of the light beam (L1′) reflected at the front surface (8) and of the light beam (L1′′) reflected at the rear surface (13) are determined,

in which a second light beam (L2) is incident obliquely on the front surface (8) of the sample (2) at a second incident angle ($\alpha 2$), different from the first incident angle ($\alpha 1$), and the positions of the light beam (L2′) reflected at the front surface (8) and of the light beam (L2′) reflected at the rear surface (13) are determined,

the thickness of the transparent sample (2) being determined from the spacing of the light beams (L1′, L1′′, L2′, L2′′), reflected at the front surface (8) and the rear surface (13), of the first light beam (L1) and/or of the second light beam (L2), and

an inclination and/or wedge angle correction being carried out by comparing the positions of at least a portion of the reflected light beams (L1′, L1′′, L2′, L2′′), characterized in that

at least a third light beam (L3) is incident obliquely on the front surface (8) at a known spacing (s) substantially parallel to the first or second light beam (L2), and a curvature correction is carried out by determining the positions of the light beams (L2', L3'), respectively reflected at the front surface (8) and at the rear surface (13), of these parallel light beams (L2, L3).

12. The method as claimed in claim 11, characterized in that the first light beam (L1) and the second light beam (L2) are incident from different sides on the front surface (8) of the sample (2) in the beam plane (14), defined by them, referred to the sample normal (9) in the region of incidence (10).

13. The method as claimed in claim 12, characterized in that the first and the second incident angles ($\alpha1$, $\alpha2$) are equal in absolute value and are preferably 45°.

14. The method as claimed in one of claims 11 to 13, characterized in that the spacing from the sample (2) is determined in each case from the position of the light beams (L1', L2') preferably reflected at the front surface (8) for the purpose of the inclination and/or wedge angle correction, a wedge angle or an inclination correction being undertaken when spacings do not correspond.

15. The method as claimed in claim 14, characterized in that a wedge or inclination angle (δ, σ) is determined from a non-corresponding spacing of the reflected light beams.

16. The method as claimed in one of claims 11 to 15, characterized in that the spacing between the reflected light beams (L3', L2') of the third light beam (L3) and the first or second light beam (L2) substantially

parallel thereto is determined and, if appropriate, a curvature correction is carried out.

17. The method as claimed in claim 16, characterized in that the radius of curvature (R) and/or angle of curvature are/is determined from the spacing between the reflected light beams (L3', L2') of the third light beam (L3) and the first or second light beam (L2) substantially parallel thereto.

18. The method as claimed in claim 17, characterized in that the refractive power is determined from the radius of curvature (R).